

Title	MicroRNAs as biomarkers for major depression: A role for let-7b and let-7c
Authors	Gururajan, Anand;Naughton, Maura;Scott, Karen A.;O'Connor, R. M.;Moloney, Gerard M.;Clarke, Gerard;Dowling, J.;Walsh, A.;Ismail, F.;Shorten, George;Scott, Lucinda V.;McLoughlin, D. M.;Cryan, John F.;Dinan, Timothy G.
Publication date	2016-08-02
Original Citation	Gururajan, A., Naughton, M. E., Scott, K. A., O'Connor, R. M., Moloney, G., Clarke, G., Dowling, J., Walsh, A., Ismail, F., Shorten, G., Scott, L., McLoughlin, D. M., Cryan, J. F. and Dinan, T. G. (2016), 'MicroRNAs as biomarkers for major depression: a role for let-7b and let-7c', Translational Psychiatry, 6(8), e862. (9pp.) DOI: 10.1038/tp.2016.131
Type of publication	Article (peer-reviewed)
Link to publisher's version	<a href="https://www.nature.com/articles/tp2016131">https://www.nature.com/articles/tp2016131</a> - 10.1038/tp.2016.131
Rights	© The Author(s) 2016. This work is licensed under a Creative Commons Attribution 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <a href="http://creativecommons.org/licenses/by/4.0/">http://creativecommons.org/licenses/by/4.0/</a> . - <a href="http://creativecommons.org/licenses/by/4.0/">http://creativecommons.org/licenses/by/4.0/</a>
Download date	2023-05-05 11:36:09
Item downloaded from	<a href="http://hdl.handle.net/10468/8918">http://hdl.handle.net/10468/8918</a>



**University College Cork, Ireland**  
Coláiste na hOllscoile Corcaigh

Table 1 - Microarray expression of let-7b and let-7c following ECT treatment

Probe	Responder		Non-responder	
	let-7b	let-7c	let-7b	let-7c
Average Hy3	11.435	10.104	11.435	10.104
LogFC	-0.625	-0.597	-0.843	-0.783
p-value	0.043	0.043	0.014	0.014

Average Hy3: array signal intensity, LogFC:log2(foldchange)

Table 2 - qRT-PCR MicroRNA expression at baseline and after treatment

	Relative fold change $\pm$ SEM (p-value)	
	Pre	Post
miR-16	0.741 $\pm$ 0.072 (0.128)	0.995 $\pm$ 0.122 (0.620)
miR-182	0.955 $\pm$ 0.118 (0.509)	0.94 $\pm$ 0.099 (0.674)
miR-451	1.065 $\pm$ 0.170 (0.584)	1.113 $\pm$ 0.158 (0.964)
miR-223	1.093 $\pm$ 0.118 (0.838)	1.126 $\pm$ 0.112 (0.733)
let-7b	0.627 $\pm$ 0.076 ( <b>0.027</b> )	0.605 $\pm$ 0.079 ( <b>0.011</b> )
let-7c	0.743 $\pm$ 0.138 (0.173)	0.77 $\pm$ 0.205 (0.106)

Table 3 - qRT-PCR MicroRNA expression at baseline and after ECT or KET treatment

	Relative fold change $\pm$ SEM (p-value)			
	Pre-ECT	Post-ECT	Pre-KET	Post-KET
miR-16	0.728 $\pm$ 0.085 (0.145)	0.883 $\pm$ 0.119 (0.374)	0.761 $\pm$ 0.130 (0.249)	1.192 $\pm$ 0.263 (0.786)
miR-182	0.968 $\pm$ 0.182 (0.430)	0.915 $\pm$ 0.125 (0.548)	0.937 $\pm$ 0.126 (0.782)	0.986 $\pm$ 0.167 (0.969)
miR-451	1.189 $\pm$ 0.262 (0.764)	1.283 $\pm$ 0.230 (0.593)	0.875 $\pm$ 0.152 (0.400)	0.801 $\pm$ 0.112 (0.373)
miR-223	1.025 $\pm$ 0.121 (0.711)	1.216 $\pm$ 0.163 (0.481)	1.191 $\pm$ 0.231 (0.940)	0.961 $\pm$ 0.099 (0.745)
let-7b	0.644 $\pm$ 0.094 ( <b>0.044</b> )	0.478 $\pm$ 0.073 ( <b>0.003</b> )	0.602 $\pm$ 0.131 (0.065)	0.832 $\pm$ 0.162 (0.329) <sup>#</sup>
let-7c	0.526 $\pm$ 0.087 (0.078)	0.495 $\pm$ 0.119 ( <b>0.028</b> )	1.054 $\pm$ 0.300 (0.511)	1.235 $\pm$ 0.499 (0.614)

<sup>#</sup> Let-7b: Post-ECT vs Post-KET, p=0.061

Table 4 - qRT-PCR MicroRNA expression at baseline and after treatment

	Relative fold change $\pm$ SEM (p-value)			
	Responder (Pre)	Responder (Post)	Non-Responder (Pre)	Non-Responder (Post)
miR-16	0.757 $\pm$ 0.088 (0.187)	0.929 $\pm$ 0.141 (0.441)	0.776 $\pm$ 0.143 (0.384)	1.166 $\pm$ 0.249 (0.800)
miR-182	0.988 $\pm$ 0.167 (0.540)	0.869 $\pm$ 0.112 (0.413)	0.856 $\pm$ 0.155 (0.414)	1.171 $\pm$ 0.195 (0.469)
miR-451	1.134 $\pm$ 0.204 (0.956)	1.094 $\pm$ 0.187 (0.847)	1.069 $\pm$ 0.384 (0.521)	1.166 $\pm$ 0.312 (1.000)
miR-223	1.142 $\pm$ 0.158 (0.643)	1.134 $\pm$ 0.137 (0.494)	0.939 $\pm$ 0.100 (0.773)	1.103 $\pm$ 0.195 (0.893)
let-7b	0.659 $\pm$ 0.094 (0.082)	0.623 $\pm$ 0.082 (0.165)	0.645 $\pm$ 0.150 (0.113)	0.560 $\pm$ 0.196 ( <b>0.034</b> )
let-7c	0.763 $\pm$ 0.169 (0.302)	0.747 $\pm$ 0.205 (0.169)	0.746 $\pm$ 0.304 (0.201)	0.827 $\pm$ 0.524 (0.113)

Table 5 - qRT-PCR MicroRNA expression at baseline and after ECT treatment

	Relative fold change $\pm$ SEM (p-value)			
	ECT Responder (Pre)	ECT Responder (Post)	ECT Non-Responder (Pre)	ECT Non-Responder (Post)
miR-16	0.726 $\pm$ 0.094 (0.114)	0.817 $\pm$ 0.117 (0.277)	0.785 $\pm$ 0.185 (0.177)	1.008 $\pm$ 0.270 (0.664)
miR-182	1.038 $\pm$ 0.267 (0.524)	0.787 $\pm$ 0.143 (0.231)	0.844 $\pm$ 0.913 (0.395)	1.189 $\pm$ 0.224 (0.506)
miR-451	1.192 $\pm$ 0.325 (0.844)	1.241 $\pm$ 0.299 (0.794)	1.233 $\pm$ 0.520 (0.725)	1.137 $\pm$ 0.365 (0.405)
miR-223	1.071 $\pm$ 0.187 (0.795)	1.221 $\pm$ 0.215 (0.539)	0.951 $\pm$ 0.131 (0.791)	1.202 $\pm$ 0.240 (0.815)
let-7b	0.636 $\pm$ 0.132 (0.097)	0.562 $\pm$ 0.098 (0.123)	0.636 $\pm$ 0.147 (0.177)	0.319 $\pm$ 0.081 ( <b>0.003</b> )
let-7c	0.612 $\pm$ 0.116 (0.310)	0.662 $\pm$ 0.172 (0.220)	0.298 $\pm$ 0.089 ( <b>0.016</b> )	0.203 $\pm$ 0.040 ( <b>0.003</b> )

Table 6 - qRT-PCR MicroRNA expression at baseline and after KET treatment

	Relative fold change $\pm$ SEM (p-value)			
	KET Responder (Pre)	KET Responder (Post)	KET Non-Responder (Pre)	KET Non-Responder (Post)
miR-16	0.804 $\pm$ 0.173 (0.181)	1.082 $\pm$ 0.293 (0.552)	0.753 $\pm$ 0.231 (0.429)	1.800 $\pm$ 0.470 (0.103)
miR-182	0.922 $\pm$ 0.169 (0.692)	0.981 $\pm$ 0.183 (0.967)	0.884 $\pm$ 0.317 (0.732)	1.043
miR-451	1.052 $\pm$ 0.200 (0.945)	0.872 $\pm$ 0.120 (0.694)	0.629 $\pm$ 0.202 (0.282)	0.446 $\pm$ 0.177 (0.118)
miR-223	1.231 $\pm$ 0.278 (0.606)	1.002 $\pm$ 0.115 (0.646)	0.908 $\pm$ 0.150 (0.900)	0.755 $\pm$ 0.013 (0.864)
let-7b	0.687 $\pm$ 0.138 (0.213)	0.707 $\pm$ 0.140 (0.235)	0.684 $\pm$ 0.636 (0.134)	1.159 $\pm$ 0.630 (0.365)
let-7c	0.957 $\pm$ 0.357 (0.459)	0.854 $\pm$ 0.421 (0.258)	1.939 $\pm$ 0.798 (0.184)	3.325 $\pm$ 2.118 (0.094)

Table 7 - qRT-PCR MicroRNA expression at baseline

	Relative fold change $\pm$ SEM (p-value)	
	KET Long-term Responder	KET Long-term Non-Responders
miR-16	0.888 $\pm$ 0.348 (0.399)	0.748 $\pm$ 0.200 (0.176)
miR-182	1.053 $\pm$ 0.282 (0.833)	0.813 $\pm$ 0.215 (0.445)
miR-451	1.233 $\pm$ 0.379 (0.508)	0.931 $\pm$ 0.234 (0.768)
miR-223	1.572 $\pm$ 0.513 (0.246)	0.947 $\pm$ 0.271 (0.796)
let-7b	0.676 $\pm$ 0.235 (0.298)	0.697 $\pm$ 0.182 (0.350)
let-7c	1.387 $\pm$ 0.731 (0.899)	0.598 $\pm$ 0.233 (0.296)